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ABSTRACT

The use of technology in language arts instruction directly impacts students (now and in the future), the role of the teacher, and the role of the school in a changing society. The idea of utilizing motivating materials such as CD-ROM story books, closed caption television, interactive communications, and digital media may lead some to think that the use of technology in language arts is the perfect solution to problems in literacy learning, but several issues need to be considered in connection with the use of technology. Access to technology among individual students and schools is not equitable. Although technology can enhance teaching strategies and student experiences, the presence of technology is not a substitute for quality instruction, and the balance between technology and the traditional uses of modes of language is an issue educators must come to terms with if literacy programs are to use technology to its full potential. Technology in language arts instruction also has great potential in meeting the individual learning needs of students, and NovaNET, a communication network of coursework, instructional materials, and databases, is an example of effective technology. In light of the issues surrounding technology use in language arts programs, the following conclusions can be made: the inequities which exist with respect to technology must be remedied in order to ensure that all children can compete in a technological society; educators debating the issue need to stay focused on the goals of education, and produce not only "technologically literate" citizens, but more importantly "literate" citizens; the lack of technological skills of many educators limits the implementation of many technology programs to their full potential. Recommendations are provided for teachers, administrators, and state educational agencies. (Contains 13 references.) (MAS)

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Technology Use in Language Arts Instruction

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Introduction

World economy is in a state of transformation. According to Lester Thurow (1995), esteemed scholar in the field of economics, one of the five major contributing factors in this transformation is the shift in technology. Advances in technology have made it possible to communicate, transport goods, and travel rapidly across the globe. This affects not only the way in which business is conducted, but the type of work force needed to succeed in the world economy.

According to Alkin (1992), the citizens of tomorrow need to be technologically literate. Technology extends into virtually every field in the work force to some extent. In addition, technology has become increasingly important in the tasks of everyday life (automatic teller machines, calculators, electronic kitchen appliances, VCRs, etc.).

Thurow (1995) states that "brain power", not natural resources (as was true in past generations), is the key to success in this new global economy. This establishes a crucial need for schools to produce citizens who are prolific readers, writers, mathematicians, scientists, speakers, as well as technologically literate. While knowledge of technology is important for individuals, the training to use the technology itself is not the ultimate goal. Education needs to be structured to produce critical thinkers who can function intelligently in the world. These types of thinkers will have basic thinking skills needed to perform well with new forms of technology as they appear.

Technology is both a subject in itself and a teaching tool. These two can be readily integrated to meet the goals of both. In using technology to meet curricular goals in traditional curricular areas, technological concepts can be taught. Adams and Hamm (1987) assert that technology is

conducive to an integrated approach to learning. This type of integration provides for a myriad of possibilities for the use of technology in education.

Although technology in general is a recurring theme in this report, the use of technology in language arts instruction is the focus. The issues relating to this focus are significant in this author's work in that they directly impact students (now and in the future), the role of the teacher, and the role of the school in a changing society.

Issues

The use of technology in language arts instruction presents exciting possibilities for enhancing the development of literacy through the use of technology. Here, the focus is on technology as a tool for learning (although the technological concepts can be readily and thoughtfully integrated). The idea of utilizing motivating materials such as CD-ROM story books, closed captioned television, interactive communications, and digital media may lead some to think that the use of technology in language arts is the perfect and ultimate solution to problems in literacy learning. While technology has many merits, there are several issues which arise in connection with the its use in literacy development and in education in general.

One issue is equity. Equity (racial, socioeconomic, gender, etc.) in education (and in society in general) has been given considerable attention in recent years. The issue of equity within technology in the schools is a source of debate. First, access to the latest technology is not equitable among individual students and schools. Students of higher socioeconomic status have greater accessibility to technology at home through increased

family income which makes it possible to purchase computers and other technology for use at home. In addition, parents who purchase computers and other technology to use at home may in turn possess higher skills with the technology to work with their children. There is a high probability, in the opinion of this author, that more European American students have this type of home access to technology than minority students (due to the average income differences between the groups). This creates inequities before the children even enter the classroom doors. At that point, the inequities can be counteracted to some extent if technology among all schools were comparable. Unfortunately, this is not the case.

An informal survey of a graduate class of teachers can provide rudimentary evidence that all schools are not functioning at equal levels in terms of technology. In this author's experience, it is not always the schools in higher socioeconomic areas that have the latest technology. Many inner city schools have up-to-date technology programs in place. A.L. Gauldin Elementary in Downey, California, is an example of this type of school.

The inequity with technology among schools of all socioeconomic and racial compositions is disadvantageous to all students who do not have the technology at school. However, this inequity is more detrimental to the low socioeconomic and minority students who do not have access to technology at home either. These students, as a group, cannot compete in a technological-dependent society with students who have access.

Among students who have potential access to technology (whether at home or at school), the issue of gender equity arises. Grant (1992) reviewed studies which indicated differences between males and females in relation to the use of technology. The increased access of boys in the use

of technology (whether through parental encouragement, after-school computer club, etc.) is an issue that must be addressed by educators and parents. Within the area of technology, there are many valid concerns regarding gender equity, however, it is certainly not the only area of schooling in which gender inequality is an issue. As this issue is dealt with throughout the curriculum, shifts in gender inequity with relation to technology may occur.

In terms of literacy instruction, technology can enhance teaching strategies and student experiences. Within the area of language arts (and all other curricular areas), **the presence of technology is not a substitute for quality instruction.** Quality instruction in literacy is the key for producing children who are effective readers, writers, speakers, and listeners (Holdaway, 1979; Mooney, 1990; Routman, 1991). The importance of quality instruction is a recurring theme throughout the literature relating to inclusion of special education students (Bender, Vail, & Scott, 1995), bilingual education (Cummins, 1992), and other areas within education.

Technology, if utilized thoughtfully and purposefully, can aid in enhancing the instruction of language processes and skills through new types of text and writing experiences. It's Elementary!: Elementary Grades Task Force Report (1992, p.48) states "Technology is a tool for improving curriculum and instruction, not an end in itself." When used as one tool to teach language arts, technology can be seen as a positive force in literacy development. When relied upon exclusively for all curricular decisions and instructional pacing (without careful attention to the quality of experiences), technology has the potential to become dangerous in the classroom.

This reliance on the exclusive and thoughtless use of technology for literacy instruction raises concerns which lead many to question if modern technology will replace paper, pencil, and books. According to Rose and Meyer (1994, p.293), "...it would be a mistake to let reading and writing decline in favor of the new media." Effective communicators need to know how to read, write, speak, listen, **and** use technology effectively in the process. The expanding role of technology in the language arts cannot be ignored, however, neither can the central language processes which give reason to use the technology. This balance among technology and the traditional uses of the modes of language is an issue educators must come to terms with in the near future if literacy programs are to utilize technology to its full potential in the process of producing students who read, write, speak, and listen to their full potentials.

The role of the teacher is also an area of relevance. Technology has the potential to revolutionize the teaching profession. If children can learn to read at an individualized pace using CD-ROM story books and computerized reading assessment, why do they need a human teacher? This is a valid concern amidst a society that has become increasingly computerized and less personal. However, it is this author's opinion that technology can never fully replace a human teacher who can think critically and make thoughtful decisions about the instruction of a child.

Technology in language arts instruction also has great potential in meeting the individual learning needs of students. Sweetwater Union High School District (Elmore, 1995) has tapped into this potential by providing students with daily access to NovaNET, a communication network of course work, instructional materials, and data bases which can be fashioned to meet individual learning needs. According to Elmore (1995, p.27),

"...the beauty of NovaNET is its ability to meet different students' needs." This has significant implications for the practice of inclusion. Students with special needs can be provided with experiences tailored to their abilities and interests. Students afflicted with ADHD can participate in multimodal learning experiences which can be paced according to individual cognitive and behavioral needs. Primary language support (and ELD) can also be enhanced and individualized to meet the needs of LEP students.

Computerized reading assessment (Rickelman, Henk, & McKenna, 1991) speeds up the process of individual assessment and has the potential to impact individual reading programs. However, it is only one type of assessment and should not replace teacher assessment of reading. This again relates to quality of practice and the use of technology as a tool in literacy development.

Conclusions and Recommendations

In light of the issues surrounding technology use in language arts instruction, several conclusions can be reached. First, the inequities which exist in respect to technology among certain groups (socioeconomic, racial, and gender) must be remedied in order to ensure that all children can compete in a technological society. If schools do not labor to provide equal opportunities to all children in this area, it will only serve to widen the gap between the "haves" and the "have-nots" in the future.

Second, educators debating this issue need to stay focused on the goals of education. One goal is to provide children with access to the latest technology in order to produce "technologically literate" citizens. Another (most importantly) is to produce literate citizens. Literacy can be gained

using technology but it is not dependent upon it solely. The most crucial aspect in literacy development is not whether or not to use technology, but whether or not the use of technology for a specific activity provides for the highest quality of instruction in light of curricular goals.

Third, educators will find that they need to be technologically literate in order to perform professionally. This author believes that the lack of technological skills in many educators limits the implementation of many technology programs to their full potential.

As a result of the research and literature in this area, several recommendations related to technology use (in language arts as well as in other areas) can be made. These are aimed at teachers, administrators, school districts, state educational agencies, and researchers.

Teachers should commit to using available technology to its full potential. Lessons using technology should be taught using sound instructional strategies and driven by curricular goals. Teachers should take care to encourage all subgroups (gender, racial, socioeconomic) equally in regards to technology use.

Administrators should commit to providing ongoing inservice training in technology use in the classroom. Selected students should take part in inservice training with teachers to create a broader knowledge base within the classroom before implementing new technology. Adequate classroom (or technology lab) personnel support should be provided. Personnel should be well-trained in the use of the technology (hardware and software). Grant writing should be undertaken to supplement existing materials and programs. A home check-out system of computers can be implemented to provide computer access to families who do not own computers. Family inservice training for this program can serve to

strengthen parent-school partnerships. Within the school district, grade level expectancies can be written to integrate technological skills.

State educational agencies should adopt technological materials (hardware and software) in the schools, as textbooks are adopted. This may serve to continually update technology in the schools and standardize materials between schools to some extent. Textbook funds (or a special categorized fund) can be used for this. Inservice training from computer companies should be included in this adoption. This proposal is costly, however, the lack of reform in this area may prove to be more costly as technologically illiterate students are produced by the nation's schools.

Lastly, researchers need to conduct more research in this area in order to further ascertain the effects of technology in language arts instruction (as well as other curricular areas).

All in all, the topic of technology in education is related to a myriad of issues within both education and society. Its importance cannot be understated in light of the changes within today's society and the prospects for society in the future.

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